

5100.23
N221/Ser
28 Jun 99

MEMORANDUM

From: Safety Program Manager Department, Navy Region,
Southwest (Code N221)
To: Mr. Frank Herilla, Manager, BOQ Reservations, Naval
Amphibious Base, Coronado
Subj: ERGONOMIC EVALUATION
Ref: (a) E-MAIL NOTE dtd 20 May 1999 from Ms. Andrea Kuhl,
OSH Specialist, Navy Region Southwest (Code N223)
(b) OPNAVINST 5100.23E, Navy Occupational Safety and
Health Manual
Encl: (1) Checklist for Evaluation of Ergonomic Stress
at Workstations Equipped with Video Display
Terminal (VDT)
(2) Ergonomic Analysis Worksheet
(3) Recommended Criteria for Computer Support
Equipment

1. Per reference (a) an evaluation of a Video Display Terminal workstation was conducted on 23 Jun 99. The evaluation was conducted in accordance with reference (b) guidelines to identify work procedures and processes where ergonomic hazards can be reduced or eliminated.
2. Enclosure (1) identifies Ms. Brenda Gonzales' existing workstation environment.
3. Enclosure (2) outlines problem identification with recommendations, justification and action plan to further prevent injuries and discomfort to the operator with Cumulative Trauma Disorder (CTD). The supervisor should be particularly responsive to the solutions listed in Section 2, Problem Identification.
4. Enclosure (3) provides guidance in selecting ergonomically correct computer workstation support equipment prior to procurement.
5. Request that you coordinate and schedule, at your convenience, a follow-up evaluation in approximately three (3) months.

6. The point of contact for additional information or clarification is Ms. Gwen Ray, who may be contacted at 553-8841.


G. A. CAMPOS Jr.

Copy to:
Ms. Brenda Gonzalez
Ms. Andrea Kuhl

15 January 1999

ERGONOMICS ANALYSIS WORKSHEET



Date: 6-23-99 Time: 1415 Analyst Names: Lukens / Ray
Analysis No. 2 Initial Analysis: Follow-Up Analysis:

1. Job Description

- a. Employee Name: **Brenda Gonzalez**
- b. Describe Task or Job: **Front Desk Clerk, BOQ, NAB**
- c. Work Schedule: **1500 -2300**
- d. Work Experience: **Computer data entry for 8 years.**

2. Problem Identification

a. Interview	b. Risk Factors	c. Unsafe Behaviors	d. Unsafe Conditions
<input type="checkbox"/> Fatigue	<input checked="" type="checkbox"/> Awkward Position	<input type="checkbox"/> Bending	<input type="checkbox"/> Unnecessary Task
<input checked="" type="checkbox"/> Discomfort	<input type="checkbox"/> Sustained Position	<input type="checkbox"/> Twisting	<input type="checkbox"/> Employee Fix
<input checked="" type="checkbox"/> Pain: Wrists	<input type="checkbox"/> Force	<input type="checkbox"/> Overreaching	<input type="checkbox"/> Housekeeping
<input type="checkbox"/> Injury	<input checked="" type="checkbox"/> Repetition	<input type="checkbox"/> Wings Up	<input type="checkbox"/> Trip/Fall Hazard
<input type="checkbox"/> Disability	<input type="checkbox"/> Contact Stress	<input type="checkbox"/> Pinch Grip	<input type="checkbox"/> Eyes on Work
<input type="checkbox"/> Pain Gesture	<input type="checkbox"/> Vibration	<input type="checkbox"/> Over Exertion	<input type="checkbox"/> Maintenance/Repair
<input type="checkbox"/> Job Dissatisfaction	<input type="checkbox"/> Physical Condition	<input type="checkbox"/> Improper Tool Use	<input type="checkbox"/> Line of Fire
<input type="checkbox"/> Learned Helplessness	<input type="checkbox"/> Environment	<input type="checkbox"/> Improper Procedure	<input type="checkbox"/> Traditional Safety
<input type="checkbox"/> Other	<input type="checkbox"/> Psychosocial	<input type="checkbox"/> Rushing	<input type="checkbox"/> PPE

Describe Recommendations:

The supervisor shall ensure adherence to the following solutions, which are considered to be the minimum acceptable to prevent further injuries and possible reoccurrence of a cumulative trauma disorder (CTD).

1. Provide a wrist rest or ergonomic keyboard for operator.
Interim Control: Employee shall be provided foam rubber pads or a folded hand towel to help support the wrists.
2. Provide task lighting or general lighting for better illumination.
Interim Control: None
3. Provide training on the Principles of Ergonomics.
Interim Control: VDT operators are informed on the health hazards associated with VDT operations.

3. Recommendations

Suggestions:			
<input type="checkbox"/> Eliminate Task	<input type="checkbox"/> Tool	<input checked="" type="checkbox"/> Lighting	<input checked="" type="checkbox"/> Training
<input checked="" type="checkbox"/> Adjustability	<input type="checkbox"/> Mechanical Assist	<input type="checkbox"/> HVAC	<input type="checkbox"/> Policy
<input type="checkbox"/> Work Height	<input type="checkbox"/> Job Rotation	<input type="checkbox"/> Mat/Insoles	<input type="checkbox"/> Procedure
<input type="checkbox"/> Tilt/Re-orient	<input type="checkbox"/> Job Expansion	<input type="checkbox"/> PPE	<input type="checkbox"/> Reward
<input type="checkbox"/> Organize	<input type="checkbox"/> Change Pace	<input type="checkbox"/> Rest Breaks	<input type="checkbox"/> Shut Down
<input type="checkbox"/> Chair	<input type="checkbox"/> Get Help	<input checked="" type="checkbox"/> Mini-Breaks	<input type="checkbox"/> Further Study
<input type="checkbox"/> Housekeeping	<input type="checkbox"/> Automate	<input type="checkbox"/> Fitness	<input type="checkbox"/> Other

Describe Recommendations:

1. Chairs should be adjusted to accommodate versatility in personnel.
Interim Control: Supervisor should ensure that personnel are trained on the elements of ergonomics.
2. Continue with scheduled breaks during work shift.

4. Cost Analysis/Justification (Prioritize)

The listed recommendations as well as the following considerations should be taken into account to minimize further aggravation. Feasibility of these recommendations may ultimately contribute to improved work performance.

1. Employee is experiencing pain and discomfort in both wrists.
2. Recommend Supervisor discuss employee Medical Report with the attending physician discuss other accommodations.

5. Action Plan (Who, What, When)

1. Supervisor schedule employee to attend Ergonomics training delivered by CNRSW Safety Office, as soon as possible. (Refer to attached Training Schedule)

Checklist for Evaluation of Ergonomic Stress at Workstations
Equipped with Video Display Terminals

	<u>Yes</u>	<u>No</u>
1. VDT stations are arranged so that lightning does not reflect directly off the screen.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. The seat and backrest of the chair support comfortable posture permitting occasional variation in the sitting position.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Seat height is adjustable so that the entire sole of the foot rests on the floor or footrest, and the back of the knee is slightly higher than the seat of the chair.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Backrest height is adjustable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Backrest angle is adjustable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Footrest provided if desired by individual.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. The height of the surface on which the keyboard rests is adjustable, allowing the worker's forearms, with fingers resting on the keyboard, to be nearly horizontal or inclined slightly upward.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. The workstation is adjusted so that the wrist is in a straight line, i.e., not bent up or down.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. The topmost line of the screen is slightly below eye level.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Screen position can be tilted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Document holder is positioned at the same height and at the same distance from the viewer as the screen.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Work surface is large enough to hold all needed reference material (at least 35 inches wide).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Paper can be easily and conveniently loaded into printers without the need for lifting heavy boxes in awkward postures.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Screen has color, brightness, and contrast satisfactory with the operator.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15. The illumination level at the VDT station is between 45 and 70 foot candles (500 and 700 lux).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. Characters on the screen are clear and free of flicker or jitter.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
17. There is adequate room under the work table to permit movement of operator's legs and a foot rest where necessary.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Yes **No**

18. Task schedules allow the operator to perform duties not requiring use of the VDT at least 15 minutes during each 2-hour period. ☒ ☐
19. Are all adjustments easy to make with a single lever or are controls known? (Equipment that is difficult to adjust will probably not be adjusted properly.) ☒ ☐

**** Score (count all "No" answers) 4**

Comments:

Ms. Brenda Gonzalez was diagnosed with a cumulative Trauma Disorder. She is Front Desk Clerk at the BOQ, Building 504, Coronado. Her duties include entering and updating receipts on a computer, answering telephones, and checking-in incoming personnel.

Prepared by: **Ms. Cathy Lukens / Ms. Gwen Ray** Date: **6-23-99**

Shop/Task Identification: **BOQ/OPS Clerk**

Operator's Name: **Ms. Brenda Gonzalez**

**** Evaluation:** When a group of workstations are evaluated by the same evaluator, the higher scores should indicate which workstations are more likely to cause ergonomic stress. It is not necessary for each workstation to achieve a perfect score on this checklist. Common sense should be useful to determine whether modifications to workstations are necessary, reasonable, and feasible.

Employee Discomfort Survey

Based on an average day, please inform us about your comfort at work. Your name is not required. Fill in all of the boxes below. Please respond honestly and thoughtfully.

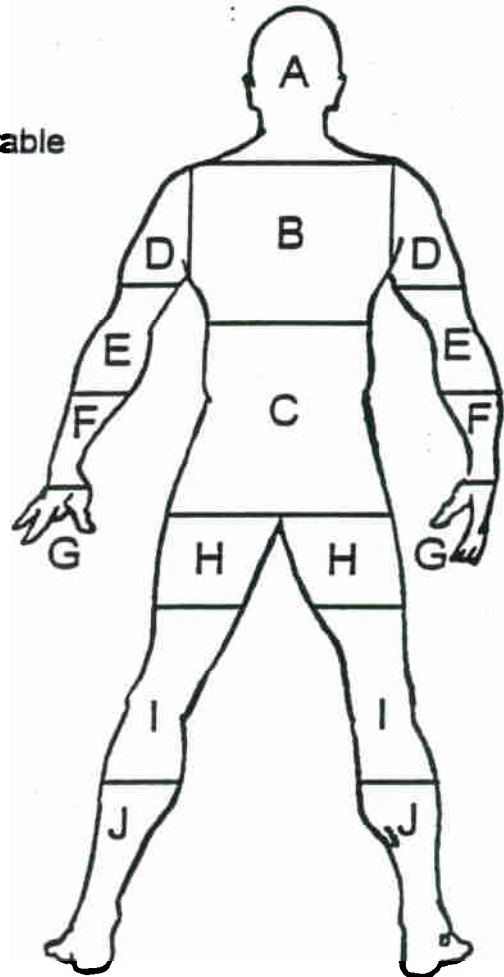
Date 6-23-99
 Dept. BEG
 Name BRENDA GONZALEZ

Rate your comfort for each region (A – J) by writing a number (0 to 10) in the box provided.
 (Make no distinction between right and left)

DISCOMFORT RATING

Very Comfortable Very Uncomfortable

- | | | | | | |
|-------------------------|----|-----|--------------------------------|-------|---|
| A) Head / neck / eyes | 10 | ... | <input type="text" value="5"/> | | 0 |
| B) Upper / mid back | 10 | ... | <input type="text" value="5"/> | | 0 |
| C) Low back / pelvis | 10 | ... | <input type="text" value="5"/> | | 0 |
| D) Shoulder / upper arm | 10 | ... | <input type="text" value="5"/> | | 0 |
| E) Elbow / mid arm | 10 | ... | <input type="text" value="3"/> | | 0 |
| F) Forearm / wrist | 10 | ... | <input type="text" value="2"/> | | 0 |
| G) Hand | 10 | ... | <input type="text" value="2"/> | | 0 |
| H) Upper leg / hip | 10 | ... | <input type="text" value="9"/> | | 0 |
| I) Mid leg / knee | 10 | ... | <input type="text" value="9"/> | | 0 |
| J) Lower leg / foot | 10 | ... | <input type="text" value="9"/> | | 0 |



Please respond to each of these questions in the boxes provided.

How hard is your work? (physically or mentally) 10 Very Much 0 Very Little

How much energy do you have left after work? 10 Very Much 0 Very Little

How would you rate your job satisfaction? 10 Very High 0 Very Low

List 5 ways we can help you make your work more comfortable, safer and more productive?

1. NA

2.

3.

4.

5.

KEYBOARD

The keyboard should be detachable and adjustable to ensure proper position, angle, and comfort for the operator. A lower than normal work surface may be required to keep the operator's arms in a comfortable position. The thickness and the slope of the keyboard are critical in determining the preferred height. The keyboard and table, therefore, have to be selected in relation to each other, or the surface must be adjustable.

KEYBOARD WRIST PAD

The preferred working position for most keyboard operators is with the forearms parallel to the floor and elbows at the sides, which allows the hands to move easily over the keyboard. The wrist should be in line with the forearm. A padded and detachable wrist rest for the keyboard can help keep the operator's wrist and hands in a straight position while stroking.

ANTI-GLARE SCREEN

Anti-glare filters that attach directly to the surface of a VDT screen can help reduce glare. Two types of filters are available: natural density filters, which scatter and diffuse some of the light reflected off the glass display screen; and micro mesh filters, which not only absorb most of the light reflected from the surface of the screen by means of an embedded interwoven grid of dyed nylon fibers. Newer model keyboards tend to have anti-glare matte finishes.

RECOMMENDED CHAIR CHARACTERISTICS

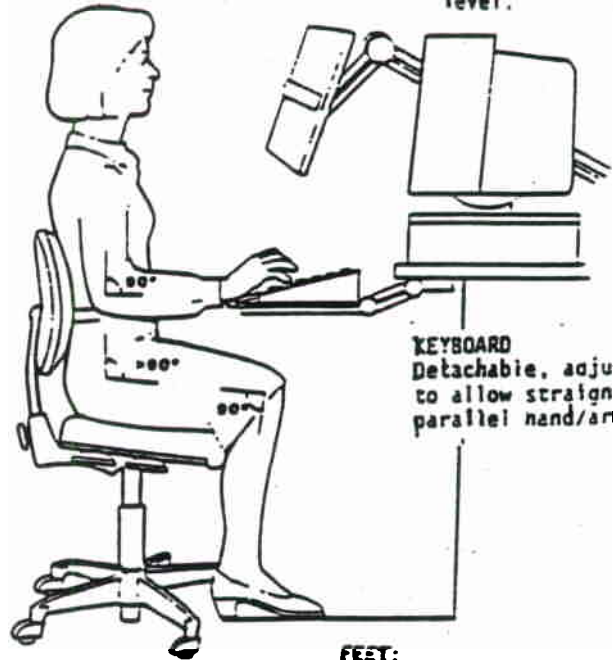
Size and shape are two factors to consider in the design of the seat pan. The seat pan can be slightly concave with a rounded, or "waterfall" edge. This will help distribute the weight and may also prevent sliding forward in the chair.

BACKREST

A proper backrest should support the entire back including the lower region. The seat and backrest of the chair should support a comfortable posture that permits frequent variations in the sitting position. The backrest angle and chair height should be easily adjustable. A foot rest may be necessary for shorter individuals. The chair height is correct when the entire sole of the foot can rest on the floor or footrest and the back of the knee is slightly higher than the seat of the chair. This allows the blood to circulate freely in the legs and feet.

DOCUMENT HOLDER:
Same height and distance from the user as the display screen.

DISPLAY SCREEN:
Top of display screen slightly below eye level.



KEYBOARD
Detachable, adjustable to allow straight/parallel hand/arms

CHAIR:
Backrest supports lower back.

FEET:
Rest comfortably on floor or foot rest.

DOCUMENT HOLDER

Position the document holder at the same height and distance as the screen to avoid constant up and down movement of the head.

FOOT SUPPORT

Inadequate support for the VDT operator's feet could result in two different problems - one with the legs and one with the back. The edge of the chair could put pressure on the backs of the thighs, and this will interfere with the circulation in the legs and feet on the floor is the preferred method. But if the VDT operator's feet do not reach the floor easily, a foot support is recommended.